

Sperm Freezing in Transsexual Women

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Gender Identity Disorder (GID) is a condition in which a person experiences discrepancy between the sex assigned at birth and the gender they identify with. Transsexualism is considered the most extreme form of GID and is characterized by the desire to live and be treated as a member of the opposite gender. The prevalence of male-to-female transsexualism in Belgium is estimated at 1 per 12,900 males (De Cuypere et al., 2007). The treatment consists of cross-sex hormone therapy and sex reassignment surgery in accordance with the Standards of Care of the World Professional Association for Transgender Health (WPATH) (7th Version) (www.wpath.org). At the center in Ghent, male-to-female transsexual persons, denoted as transsexual women, are treated in a multidisciplinary approach, including cross-sex hormone therapy and sex reassignment surgery for most. Hormone therapy with anti-androgens and estrogens is used in the majority of transsexual women. After at least 1 year of hormonal therapy, sex reassignment surgery can be offered, which includes orchidectomy and penectomy in combination with vaginoplasty (Selvaggi et al., 2005). Both hormonal and surgical interventions negatively affect the male reproductive system. Hormonal therapy itself leads to

decreased spermatogenesis and eventually to azoospermia (Lubbert, Leo-Rossberg, & Hammerstein, 1992; Schulze, 1988). Currently, it is unknown whether spermatogenesis will restore after prolonged estrogen treatment or not (Hembree et al., 2009). Sex reassignment surgery, on the other hand, results in an irreversible loss of natural reproductive capacity in transsexual women.

Current reproductive techniques can offer adult transsexual women the possibility of having genetically related children (De Sutter, 2001). They can store their sperm for long-term cryopreservation before undergoing hormonal therapy for future use in assisted reproductive techniques (ART). Sexual orientation of transsexual women may influence the future plans for using the frozen sperm. If transsexual women have a female partner, they can procure children through intrauterine insemination, in vitro fertilization or intracytoplasmic sperm injection, based upon the sperm quality after thawing. Reproductive options for transsexual women with a male partner are more difficult as they need oocyte donation as well as a surrogate mother.

Reproductive needs and rights of transsexual persons have already been recognized for over 15 years (Lawrence, Shaffer, Snow, Chase, & Headlam, 1996) and since 2001 the WPATH Standards of Care contains a paragraph that addresses the need to discuss reproductive issues with transsexual persons, prior to starting hormonal treatment (Meyer et al., 2001). Also, the new WPATH Standards of Care (Seventh version) (2011) as well as the Clinical Practice Guidelines of the Endocrine Society (Hembree et al., 2009) clearly state that transsexual persons should be encouraged to consider fertility issues before starting cross-gender hormonal treatment. On the other hand, research on this topic is still scarce. In the past 10 years, only two studies have investigated the opinions of transsexual persons themselves concerning this topic (De Sutter, Kira, Verschoor, & Hotimsky, 2002; Wierckx et al., 2012) and few have addressed reproductive difficulties (e.g., access to ART in transsexual patients) (Alvarez-

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Díaz, 2009; Hunger, 2012; McGuinness & Alghrani, 2008; Murphy, 2010).

Some medical experts involved in reproductive care may have critical feelings upon the ethical aspects of the possible procreation after sex reassignment (Baetens, Camus, & Devroey, 2003; Brothers & Ford, 2000; Jones, 2000). The most important ethical issue is related to the impact on the child's well-being of having a gender-reassigned parent. At present, there is no evidence that having a transsexual parent can affect the child's development, although this conclusion is based on limited data (Freedman & Tasker, 2002; Green, 1978, 1998; Sales, 1995; White & Ettner, 2004, 2007). Also, a clear differentiation should be made between children whose parent changes gender during the life of the child from those whose parent's gender transition took place before birth. In the latter, the child will not experience the moment of transition and the accompanied emotional and social difficulties. To date, no information is available about the welfare of children of transsexual persons conceived by medically assisted reproduction and studies will be needed to evaluate the well-being and development of these children. However, the lack of reassuring evidence cannot be used as a barrier against reproduction after gender transition. Moreover, even if these children encounter difficulties as a consequence of the family setting, these difficulties may be similar to other non-conventional family settings, such as same-sex families and cannot automatically imply that reproduction in this family setting is ethically unacceptable (Pennings, 2011; Wierckx et al., 2012).

In 2003, the Ethical Committee of Ghent University agreed to the proposal of storing and using sperm for transsexual people. Since that time, during the diagnostic phase of treatment and before start of hormonal therapy, all transsexual women are informed about the cryopreservation procedure so that they can make a balanced decision. To date, 27 transsexual women have chosen sperm banking at our center. Also, at other centers, such as the Center for Reproductive Medicine in Cleveland, two transsexual women have stored sperm in this context (A. Agarwal, personal communication). In our participants, the mean age at the time of freezing was 28 years (range, 20–45). Half of our patients were mainly attracted to females ($n = 12$). The others were mainly attracted to males ($n = 8$), both ($n = 4$) or their sexual orientation was not known ($n = 3$). So far, one transsexual woman has used this sperm for donor insemination in her partner and a healthy child was born.

In 2011, 6 transsexual women (M age, 24 years) treated at our center chose to freeze their sperm, which was approximately 15 % of the transsexual women that presented in that year. The motivation why relatively few transsexual women chose to store their gametes is not well-known as only one study has investigated the opinions of 121 transsexual women by an internet-based survey on this topic (De Sutter et al., 2002). They described that 51 % of their study group ($n = 61$) would have considered sperm freezing or would actually have chosen to do so if they had been offered. On the other hand, 90 % of the study group

stated that fertility loss was not an important reason to defer their transition process.

Several difficulties may reduce the motivation towards fertility preservation in this population. Our clinical impression indicates that many transsexual women favor a fast transition over future fertility concerns. Also, nowadays transsexual women present at a younger age, when they do not yet have children nor have a concrete fertility wish. De Sutter et al. (2002) also described that in one-third of their sample it was stated that storage of frozen sperm would mean that one cannot break with the male past. In addition, several transsexual women mentioned that they found it hard to masturbate at all, particularly in the surroundings of a hospital laboratory. Besides that, the financial burden of semen preservation can influence the choice of these individuals. At this moment, this procedure costs approximately 600 euro (including long-term preservation for 10 years) and this means another cost to add to an already big financial burden during transition. However, we have the impression that financial costs were only for a few transsexual women an important reason for declining sperm preservation. We observed that the majority of transsexual women who chose to freeze their sperm were attracted to females or bisexual ($n = 16$, 66.7 %). This is in line with De Sutter et al. (2002), who found that 56 % of lesbian and bisexual transsexual women would have frozen their sperm or would have considered it compared to only 13 % of asexual or heterosexual transsexual women. Further structured exploration of the underlying motivations why few transsexual women freeze their sperm is needed to gain more insight in this matter.

In conclusion, reproduction after gender reassignment is an inadequately studied area in the care of transsexual persons despite the fact that current treatment guidelines state that discussing options for fertility preservation before undergoing sex conversion therapy should constitute an essential component of management. Cryopreservation is sometimes used at certain centers but in relatively few transsexual women. Future studies are needed to explore the motivations and experiences of transsexual persons that health care providers can improve patient counseling and management in relation to this topic and so enhance overall patient care.

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